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PCT/AU00/00467

PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

PCT

NOTIFICATION OF THE RECORDING OF A CHANGE

(PCT Rule 92bis.1 and Administrative Instructions, Section 422)

To:

F. B. RICE & CO.
605 Darling Street
Balmain, NSW 2041
AUSTRALIE

Date of mailing (day/month/year)
31 August 2001 (31.08.01)

Applicant's or agent's file reference
100184

IMPORTANT NOTIFICATION

International application No.
PCT/AU00/00467

International filing date (day/month/year)
17 May 2000 (17.05.00)

1. The following indications appeared on record concerning:

[X] the applicant [ ] the inventor [ ] the agent [ ] the common representative

Name and Address
SACHCOM PTY LTD
14 Rosslyn Street
Bellevue Hill, NSW 2023
Australia

State of Nationality: AU
State of Residence: AU
Telephone No.:
Facsimile No.:
Teleprinter No.:

2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

[ ] the person [X] the name [ ] the address [ ] the nationality [ ] the residence

Name and Address
Smart Container Pty Ltd
14 Rosslyn Street
Bellevue Hill, NSW 2023
Australia

State of Nationality: AU
State of Residence: AU
Telephone No.:
Facsimile No.:
Teleprinter No.:

3. Further observations, if necessary:

4. A copy of this notification has been sent to:

[X] the receiving Office
[ ] the International Searching Authority
[X] the International Preliminary Examining Authority
[ ] the designated Offices concerned
[X] the elected Offices concerned
[ ] other:

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Facsimile No.: (41-22) 740.14.35

Authorized officer
S. Mafla (Fax 338.87.40)

Telephone No.: (41-22) 338.83.38

Form PCT/IB/306 (March 1994)

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 100184/CO	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. **PCT/AU00/00467**	International Filing Date *(day/month/year)* 17 May 2000	Priority Date *(day/month/year)* 17 May 1999

International Patent Classification (IPC) or national classification and IPC

Int. Cl. [7] G08C 25/00, 25/04, 17/00, G06F 17/40, H04Q 9/00

Applicant

[SACHCOM PTY LTD et al]

SMART CONTAINER PTY LTD.

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

[X] This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of **10** sheet(s).

3. This report contains indications relating to the following items:

I	[X]	Basis of the report
II	[ ]	Priority
III	[ ]	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
IV	[ ]	Lack of unity of invention
V	[X]	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
VI	[ ]	Certain documents cited
VII	[ ]	Certain defects in the international application
VIII	[ ]	Certain observations on the international application

Date of submission of the demand	Date of completion of the report
20 November 2000	18 July 2001
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer **P. THONG** Telephone No. (02) 6283 2128

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/AU00/00467

I. Basis of the report

1. With regard to the **elements** of the international application:*

☐ the international application as originally filed.

☒ the description, pages **1-10,** as originally filed,
pages , filed with the demand,
pages , received on with the letter of

☒ the claims, pages , as originally filed,
pages , as amended (together with any statement) under Article 19,
pages , filed with the demand,
pages **11-19,** received on **6 July 2001** with the letter of **4 July 2001**
pages **20,** received on **29 May 2001** with the letter of **28 May 2001**

☒ the drawings, pages **1/8-8/8,** as originally filed,
pages , filed with the demand,
pages , received on with the letter of

☐ the sequence listing part of the description:
pages , as originally filed
pages , filed with the demand
pages , received on with the letter of

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages

☐ the claims, Nos.

☐ the drawings, sheets/fig.

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	**1-66**	**YES**
	Claims		**NO**
Inventive step (IS)	Claims	**1-66**	**YES**
	Claims		**NO**
Industrial applicability (IA)	Claims	**1-66**	**YES**
	Claims		**NO**

2. Citations and explanations (Rule 70.7)

(D1)-US 5347274

(D2)-US 5381136

(D3)-US 5854994

(D4)-DE 19534948

(D5)-US 5686888

None of the citations discloses the subject matter as claimed. Therefore the subject matter of these claims is new and meets the requirements of Article 33(2) PCT with regard to the requirement for novelty. The subject matter of these claims is not obvious and meets the requirements of Article 33(3) PCT with regard to the requirement for inventive step. The subject matter is industrially applicable.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00467

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. [7]: G08C 25/00, 25/04, 17/00, G06F 17/40, H04Q 9/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC : G08C 25/00, 25/04, 17/00, G06F 17/40, H04Q 9/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
AU : IPC AS ABOVE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WPAT, USPTO Web Patent Database, Esp@cenet, "ship, freight, food, monitor, log, record etc"

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	US 5347274 A (HASSETT) 13 September 1994	
X	**Whole document.**	**1-7,11-61**
Y	**Combined with any of the following citations with relevance to the same claims.**	**8-10**
	US 5381136 A (POWERS et al.) 10 January 1995	
X	**Column 7 lines 45-53, Column 8 lines 2-11 & fig.7 in particular.**	**1,2,5,11,17-29,33-61**
Y	**Combined with the other citations with relevance to the same claims.**	**3,4,30-32**
	US 5854994 A (CANADA et al.) 29 December 1998	
X	**Whole document.**	**1,2,5-7,11,17-29,33-61**
Y	**Combined with the other citations with relevance to the same claims.**	**3,4,30-32**
	DE 19534948 A (SIEMENS AG) 27 March 1997	
X	**Whole document.**	**1-7,11-14,16,29-35**
Y	**Combined with the other citations with relevance to the same claims.**	**8-10,15,17-28,36-61**

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" Document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
13 June 2000	20 JUN 2000
Name and mailing address of the ISA/AU	Authorized officer
AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustralia.gov.au Facsimile No. (02) 6285 3929	P. THONG Telephone No : (02) 6283 2128

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU00/00467

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	**US 5686888 A (WELLES, II et al.) 11 November 1997** **Entire document.**	**1-61**

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/AU00/00467

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member					
US	5347274	WO	9407225	US	5805082		
US	5854994	EP	932890	WO	9810393	US	5907491
US	5686888	CA	2176879	EP	748083	IL	118282
		JP	9120410				

END OF ANNEX

CLAIMS:

1. A telemetry system for measuring one or more parameters and transmitting a signal representing the value or values of the one or more measured parameters over a significant distance via at least one communication network, the system comprising parameter measurement means to measure the respective parameters, signal generator means to generate a signal representative of the measured value for transmission, and local communication means for transmitting the signal via the at least one communication network to a receiving station connected to the communications network and monitoring means also connected to the communications network for receiving the signal and indicating the value or any one of the values represented by the signal.

2. The telemetry system of claim 1, wherein the telecommunications system is a land based communications network and the local communication means communicates with a relay transceiver connected to the land based network.

3. The telemetry system of claim 1, wherein the telecommunications system includes a satellite and the local communications means is in communication with a relay transceiver, arranged only to transmit on an interrogation from the satellite.

4. The system of claim 1, wherein the telecommunications system includes a satellite and the local communications means is in communication with a relay transceiver arranged to initiate communication with a satellite mounted transponder.

5. The system as claimed in any one of the preceding claims, wherein the communication means is a low power transmitter which communicates with the relay transceiver

6. The system of claim 1, 2, 3, 4 or 5, wherein the parameter measurement means and signal generator means are mounted in or on a transport container to monitor conditions within the transport container.

7. The system of claim 6, wherein the transport container is a shipping container of the type used for sea transportation.

8. The system of claim 2, 3, 4, 5, 6 or 7, wherein a plurality of transport containers are fitted with monitoring systems and each transmits information, as required, to others of the containers similarly fitted with monitoring devices, one of the containers is fitted with a master monitoring

device for receiving signals from the monitoring systems of other containers and the master monitoring device collects all of the information signals from all of the other monitoring devices the information signals and transmits to the transceiver which then transmits the information signals to the satellite transceiver.

9. The system of claim 8, wherein at least some of the monitoring devices located in the containers are interconnected to one another or to the master monitoring device by wire connections.

10. The system of claim 8, wherein at least some of the monitoring devices located in the containers are in communication with each other and the master monitoring device via wireless communication means.

11. The system as claimed in any one of the preceding claims, wherein monitoring functions of the remote sensing unit include, an input for monitoring one or more of, temperature, humidity, air flow, air pressure, partial pressure of oxygen or other components in the air in the container, the location, shock, power supply parameters, filtration operation, illumination levels, security breaches, surveillance camera operation and motion detection.

12. The systems of claim 11, wherein measured parameters are used to predict a projected state of a perishable cargo at the end of a journey, from a history of the conditions to which the cargo has been subjected up to the current point in the journey.

13. The system of claim 3 or 4, wherein the parameter measurement means and the signal generator means are located in a fixed location in a transportation vehicle or vessel and the communications means is a low power transmitter which communicates with the transceivers.

14. The system of claim 13, wherein the parameter measurement means and the signal generating means are mounted in an equipment space of a ship.

15. The system of claim 14, wherein the parameter measurement means measures bilge condition and bilge pump status.

16. The system of claim 13, 14 or 15, wherein the monitoring functions of the remote sensing unit include an input for measuring power supply conditions of environmental control equipment or other equipment supporting or forming part of a consignment, shaft speed of the vessel, water purity in a bilge, filtration operation, illumination levels, pollution levels,

security breaches, surveillance camera operation or motion detection, status of pollution control equipment, machinery discharge, sewage outflows, discharge of ships' ballast, noise, air quality, water quality, vessel position (eg: GPS), surveillance cameras, locking and unlocking of controlled spaces, and entry and exit of controlled spaces.

17. The system as claimed in any one of claims, 2 to 16, wherein the measurement of the one or more parameter by a stand alone data logging device, measures one or more parameter values, the data logging device including measurement means for measuring the parameter values, storage means to record the measured parameter values and control means to periodically cause the measurement to be made and recorded in the storage means.

18. The system as claimed in claim 17, wherein the parameters measured are temperature and humidity.

19. The system as claimed in claim 17, wherein the storage means is a digital memory.

20. The system as claimed in claim 17, wherein the storage means is a magnetic storage device.

21. The system as claimed in claim 17, wherein the storage means is a floppy dick drive.

22. The system as claimed in any one of claims 2 to 21, wherein the control means includes an input/output means for receiving a trigger signal to trigger the down loading of data and in response to the trigger signal, and generating an output signal representing some or all of the data held in the storage means.

23. The system as claimed in claim 22, wherein the control means records the parameter values at regular intervals.

24. The system of claim 23, wherein the control means records the parameter values at intervals in the range of once every 10 minutes to 2 hours.

25. The system as claimed in any one of claims 17 to 24, wherein the control means comprises a control unit connected to the data logger and to the transmission means and controls transmission via the at least one transceiver.

26. The system of claim 25, wherein the control unit periodically initiates downloading of the data from the data logger and initiates a transmission automatically.

27. The system of claim 26, wherein the control unit holds data tolerance information and when the data is unloaded from the data logger, the control unit examines the data and if it is in tolerance, sends a transmission indicating that the system is operating correctly and all data is in tolerance and if the data is not in tolerance, the control unit transmits the data.

28. The system of claim 25, wherein the control unit responds to a signal transmitted to the communication means via the transceiver to initiate unloading of the data from the data logger and transmission of the data to the receiving station.

29. The system as claimed in any one of claims 2 to 28, wherein the local communication means is a transmitter arranged to transmit to a local transceiver which in turn relays the signal to the receiving station via pre-existing communications channels.

30. The system as claimed in claim 29, wherein the pre-existing communications system includes a communications channel associated with a satellite navigation system.

31. The system as claimed in claim 29, wherein the pre-existing communication system includes a communications channel of a satellite telephone system.

32. The system of claim 31, wherein the pre-existing communications system is a switched telephone network.

33. A remote sensing unit for a telemetry system, the remote sensing unit comprising:

parameter measurement means to measure a parameter or parameters of interest;

signal generator means to generate a signal representative of the measured value of the or each parameter; and

communication means for transmitting the signal to a relay transceiver, located in close proximity to the communication means, the relay transceiver being in communication with a communication network for further transmission via the communication network.

34. The system as claimed in any one of claims 31, 32 or 33, wherein communication means is a low power transmitter which communicates with the relay transceiver.

35. The sensing unit as claimed in claim 33 or 34, wherein monitoring functions of the remote sensing unit include, an input for monitoring one or more of, temperature, humidity, air flow, air pressure, partial pressure of oxygen or other components in the air in the container, the location, shock, power supply parameters, filtration operation, illumination levels, security breaches, surveillance camera operation and motion detection.

36. The sensing unit as claimed in any one of claims, 33 to 35, wherein the measurement of the one or more parameters by a stand alone data logging device, measures one or more parameter values, the data logging device including measurement means for measuring the parameter values, storage means to record the measured parameter values and control means to periodically cause the measurement to be made and recorded in the storage means.

37. The sensing unit as claimed in claim 36, wherein the parameter measures are temperature and humidity.

38. The sensing unit as claimed in claim 36, wherein the storage means is a digital memory.

39. The sensing unit as claimed in claim 36, wherein the storage means is a magnetic storage device.

40. The sensing unit as claimed in claim 36, wherein the storage means is a floppy dick drive.

41. The sensing unit as claimed in any one of claims 33 to 40, wherein the control means includes an input/output means for receiving a trigger signal to trigger the down loading of data and in response to the trigger signal, and generating an output signal representing some or all of the data held in the storage means.

42. The sensing unit as claimed in claim 41, wherein the control means records the parameter values at regular intervals.

43. The sensing unit of claim 42, wherein the control means records the parameter values at intervals in the range of once every 10 minutes to 2 hours.

44. The sensing unit as claimed in any one of claims 35 to 43, wherein the control means comprises a control unit connected to the data logging device

and to the transmission means and controls transmission via the at least one transceiver.

45. The sensing unit of claim 44, wherein the control unit periodically initiates downloading of the data from the data logging device and initiates a transmission automatically.

46. The sensing unit of claim 45, wherein the control unit holds data tolerance information and when the data is unloaded from the data logging device, the control unit examines the data and if it is in tolerance, sends a transmission indicating that the system is operating correctly and all data is in tolerance and if the data is not in tolerance, the control unit transmits the data.

47. The sensing unit of claim 44, wherein the control unit responds to a signal transmitted to the communication means via the transceiver to initiate unloading of the data from the data logging device and transmission of the data to the receiving station.

48. A control unit arranged to be connectable to a data logging device and including trigger signal generating means to trigger the data logging device to download data, data input means to receive data from the connected data logging device, signal generating means to generate a signal encoding the downloaded data in a format suitable for transmission over a communications network and input/output means arranged for connection to a communications device for communicating the signal generated by the signal generating means to the communication device.

49. The control unit as claimed in any one of the preceding claims, wherein monitoring functions of the data logging device include, an input for monitoring one or more of, temperature, humidity, air flow, air pressure, partial pressure of oxygen or other components in the air in the container, the location, shock, power supply parameters, filtration operation, illumination levels, security breaches, surveillance camera operation and motion detection.

50. The control unit of claim 49, wherein the monitoring functions of the data logging device include an input for measuring power supply conditions of environmental control equipment or other equipment supporting or forming part of a consignment, shaft speed of the vessel, water purity in a bilge, filtration operation, illumination levels, pollution levels, security breaches, surveillance camera operation or motion detection, status of

pollution control equipment, machinery discharge, sewage outflows, discharge of ships' ballast, noise, air quality, water quality, vessel position (eg; GPS), surveillance cameras, locking and unlocking of controlled spaces, and entry and exit of controlled spaces.

51. The control unit as claimed in any one of claims 48 to 50, wherein the measurement of the one or more parameters by the data logging device, includes measurement means for measuring one or more parameter values, and storage means to record the measured parameter values and the data logging device is responsive to the control unit to periodically cause the measurement to be made and recorded in the storage means.

52. The control unit as claimed in claim 51, wherein the parameters measured are temperature and humidity.

53. The control unit as claimed in claim 51, wherein the storage means is a digital memory.

54. The control unit as claimed in claim 51, wherein the storage means is a magnetic storage device.

55. The control unit as claimed in claim 51, wherein the storage means is a floppy dick drive.

56. The control unit as claimed in any one of claims 48 to 56, further comprising an input/output means for receiving a trigger signal to trigger the down loading of data and generating an output signal representing some or all of the data held in the storage means in response to the trigger signal.

57. The control unit as claimed in claim 56, wherein the control unit causes the data logging device to record the parameter values at regular intervals.

58. The control unit of claim 57, wherein the data logging device records the parameter values at intervals in the range of once every 10 minutes to 2 hours.

59. The control unit as claimed in any one of claims 48 to 58, wherein the control means comprises a control unit connected to the data logging device and to the transmission means and controls transmission via the at least one transceiver.

60. The control unit of claim 59, wherein the trigger signal generating means periodically initiates downloading of the data from the data logging device and initiates a transmission over the communication network automatically.

61. The control unit of claim 60, wherein a data storage means holds data tolerance information and when the data is unloaded from the data logging device, the control unit examines the data and if it is in tolerance, sends a transmission indicating that the system is operating correctly and all data is in tolerance and if the data is not in tolerance, the control unit transmits the data.

add A1